

Patent claims:

1. A moldable-foam molding, obtainable via fusion of prefoamed foam beads composed of expandable, pelletized thermoplastic polymer materials, comprising  
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from 5 to 100% by weight of a styrene copolymer A),  
from 0 to 95% by weight of polystyrene B), and  
from 0 to 95% by weight of a thermoplastic polymer C) other than A) and B), wherein the density of the moldable foam is in the range from 8 to 100 g/l.

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2. A moldable-foam molding according to claim 1, wherein at least 80% of the cells of the individual foam beads are of closed-cell type.

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3. A moldable-foam molding according to claim 1 or 2, wherein the pelletized thermoplastic polymer material comprises

from 50 to 90% by weight of polystyrene B) and from 10 to 50% by weight of styrene copolymer A) or thermoplastic polymer C).

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4. A moldable-foam molding according to any of claims 1 to 3, which comprises, as styrene copolymer, styrene-butadiene block copolymers, styrene- $\alpha$ -methylstyrene copolymer, acrylonitrile-butadiene-styrene (ABS), styrene-acrylonitrile (SAN), acrylonitrile-styrene-acrylate (ASA), methacrylate-butadiene-styrene (MBS), methyl methacrylate-acrylonitrile-butadiene-styrene (MABS) polymers.

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5. A moldable-foam molding as claimed in any of claims 1 to 4, which comprises, as thermoplastic polymer C), polyamide (PA), polyolefins, such as polypropylene (PP) or polyethylene (PE), polyacrylates, such as polymethyl methacrylate (PMMA), polycarbonate (PC), polyesters, such as polyethylene terephthalate (PET) or polybutylene terephthalate (PBT), polyether sulfone (PES), polyether ketones (PEKs), or polyether sulfides (PES), or a mixture of these.

6. An expandable, thermoplastic pelletized polymer material, which comprises

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from 5 to 100% by weight of a styrene copolymer A),  
from 0 to 95% by weight of polystyrene B), and  
from 0 to 95% by weight of a thermoplastic polymer C) other than A) and B).

7. An expandable, pelletized thermoplastic polymer material according to claim 7, which comprises from 3 to 7% by weight of an organic blowing agent.

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8. A process for preparing expandable pelletized thermoplastic polymer materials, encompassing the steps of

a) preparing a mixture from

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from 5 to 100% by weight of a styrene copolymer A),  
from 0 to 95% by weight of polystyrene B), and  
from 0 to 95% by weight of a thermoplastic polymer C) other than A) and B),

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b) using a static or dynamic mixer at a temperature of at least 150°C to incorporate an organic blowing agent into the polymer melt,

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c) cooling the polymer melt comprising blowing agents to a temperature of at least 120°C,

d) discharge via a die with holes whose diameter at the discharge from the die is at most 1.5 mm, and

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e) pelletizing the melt comprising blowing agent directly downstream of the die plate under water at a pressure in the range from 1 to 20 bar.

9. A process for producing moldable-foam moldings, according to claim 6, wherein hot air or steam is used in a first step to prefoam expandable, pelletized thermoplastic polymer materials according to claim 7 to give foam beads whose density is in the range from 8 to 100 g/l, and, in a second step, these are fused in a closed

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mold.